Idaho 8th Grade Direct Mathematics Assessment

2003 8th GRADE MAIN RANGEFINDER 3

It is important that you show or explain how you solved the problems on this assessment. If you use a calculator, show how you set up the math.

1. Your school is planning a snowboarding trip to a local resort as part of the advanced P.E. class. Each student must purchase a regular or P.E. class package.

Regular Package		P.E. Class Package		Lunch	
Lift pass	$22.00	Lift pass	$ 6.00	Monster burger	$5.95
Group Lesson	$18.00	Group lesson	$ 7.00	Fries	$2.35
Snowboard	$25.00	Snowboard	$13.00	Drink	$1.70

a. How much would you save by choosing the P.E. class package? *Show or explain how you found your answer.*

22 + 18 + 25 = 65

6 + 7 + 13 = 26

65 − 26 = 39

You will save 39 dollars by purchasing a P.E. class package

b. If you were to go snowboarding using the regular package, the snowboard rental would represent what percent of the total cost? *Show or explain how you found your answer.*

22 + 18 + 25 = 65

65 × 2.5 = 162.5

The Snow board will be 18.25% of the total cost

c. At lunchtime you decide to have a monster burger, fries, and a drink. Find the total cost of lunch including a 6% sales tax. *Show or explain how you found your answer.*

5.95 + 2.35 + 1.70 = 10.00

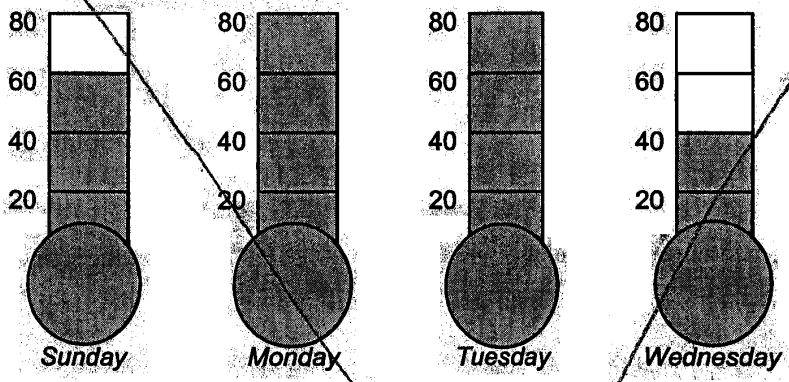
10 × .6 = 6.0

The total price would be $10.60

Proficient mathematical achievement at grade level

Read problems 2, 3, 4, and 5 on this and the next two pages. Select three problems to answer. Answer ALL of the parts of the three problems you select to answer. Cross out the one problem that you do not choose to answer.

2. During the first four days of last week, Dan recorded the 10:00 a.m. temperature. Use the data below to answer the following prompts.



a. Make a graph to represent the temperature.

b. Find the mean temperature for the four-day period. *Show or explain how you found your answer.*

c. On Tuesday at 7:30 a.m., the temperature was 35°. Determine the rate of change, in degrees per hour, between 7:30 a.m. and 10:00 a.m. *Show or explain how you found your answer.*

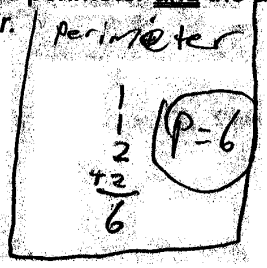
d. If the temperature changed at a constant rate on Tuesday, determine the temperature at 8:45 a.m. *Show or explain how you found your answer.*

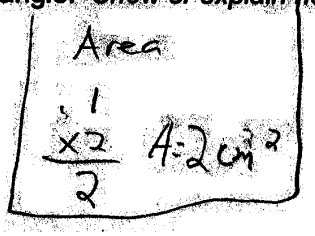
Proficient application of basic skills

3. The rectangle shown here is 1 unit by 2 units.

Effective use of communication skills

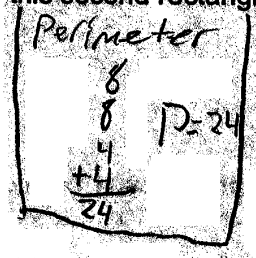
a. Find the perimeter and the area of this rectangle. *Show or explain how you found your answer.*

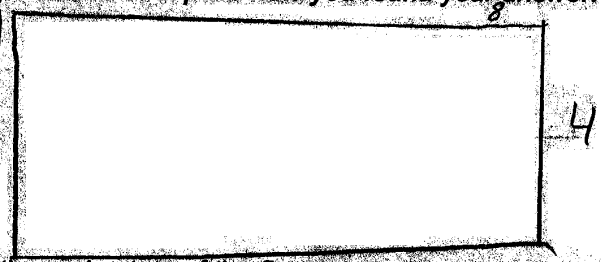


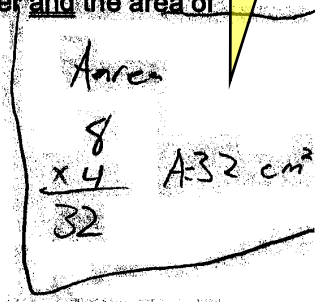


Adequate processes

b. Sketch and label a rectangle that is 4 units by 8 units. Find the perimeter and the area of this second rectangle. *Show or explain how you found your answer.*







c. What is the ratio of the perimeters of the first rectangle to the second rectangle? What is the ratio of the areas of the first rectangle to the second rectangle? *Show or explain how you found your answer.*

P= 6:24÷3:12= 1:4

A= 2:32 cm²

Understanding of situations

Communication error

d. Describe the perimeter and area of a rectangle that is three times as long and three times as wide as the rectangle shown here. *Show or explain how you found your answer.*

X = 1

Y = 3

4. Each time you buy a hamburger or hot dog at BOB'S DRIVE-IN, you get a card with three squares on it. When you rub each square on your card, a picture of a taco or a drink appears. If all pictures match, you get a free order of fries.

a. List all the possible ordered combinations of pictures you could get when you rub off the squares. *Show or explain how you found your answer.*

S1	drink	drink	drink	drink	Taco	taco	taco	taco
S2	drink	drink	taco	Taco	taco	taco	drink	drink
S3	drink	Taco	drink	Taco	taco	drink	taco	drink

b. What is the probability that the card you get will be a winner? *Show or explain how you found your answer.*

1:8

Proficient mathematical achievement at grade level

c. One day, BOB'S DRIVE-IN gave away 296 cards. Suppose that one fourth of the cards were winning cards. How many orders of fries were given away? *Show or explain your answer.*

$\frac{296}{1/4}$ = 74 winning cards

74 fries were given away

Occasional surface errors

d. It costs BOB'S DRIVE-IN $0.23 to buy, prepare, and serve an order of fries. How much did the give-away cost BOB'S? *Show or explain how you found your answer.*

$74 \times .23 = 17.25$

It cost bob's $17.25 for these fries

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5. The school drill team has decided to have a car wash for a fund-raiser. They have discovered that 3 girls can wash 2 cars in about 15 minutes. The team has 24 girls.

a. How many cars can the entire team (24 girls) wash in 5 hours? *Show or explain how you found your answer.*

groups of 8

$\times 2$ = cars per group

$16 \times 4 = 64$

$64 \times 5 = 320$

In 5 hours 320 cars can be washed

total number of cars in 15 min. = 16

b. If one group of girls washes 40 cars, what fraction of the total do they wash? What percent of the total do they wash? *Show or explain how you found your answer.*

$\frac{40}{320} = \frac{20}{160} = \frac{10}{80} = \frac{5}{40} = \frac{1}{8}$

$\frac{1}{8} = .125$

1/8 of the cars or 12.5% were washed by this group

Effective problem solving

c. The drill team charges $5.00 per car. Find the amount of money that will be left after the team spends 40% of their earnings for summer camp. *Show or explain how you found your answer.*

$320 \times 5 = 1600$

$1600 \times .40 = 640$

$1600 - 640 = 960$

$960.00 will be left over after the car wash

Well-defined structure